

WHAT IS CLAIMED IS:

1. A method for improving the quality of X-ray images generated by an X-ray imaging system, said X-ray system including an X-ray emitter and an X-ray detector, said method including the steps of:

positioning the patient between said X-ray emitter and said X-ray detector;

imaging the patient with a low-dose pre-shot to determine a low-dose image;

analyzing the low dose image to determine the positioning of the patient relative to said X-ray emitter and said X-ray detector;

adjusting the positioning of the patient relative to at least one of said X-ray emitter and said X-ray detector; and

imaging the patient with a full-dose exposure.

2. The method of claim 1 wherein said adjusting step includes adjusting the positioning of the patient and then re-imaging said patient with a second low-dose pre-shot prior to imaging the patient with a full-dose exposure.

3. The method of claim 1 wherein said low-dose pre-shot has a dose of less than 10 percent of said full-dose exposure.

4. The method of claim 1 wherein said low-dose pre-shot has a dose of less than 4 percent of said full-dose exposure.

5. The method of claim 1 wherein said X-ray system includes X-ray imaging parameters and said X-ray imaging parameters vary between said low-dose pre-shot and said full-dose exposure.

6. The method of claim 5 wherein said X-ray imaging parameters are varied according to one of patient size and anatomical view.

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7. The method of claim 1 wherein the X-ray system is controlled by a technician from a remote acquisition console.

8. The method of claim 1 wherein the X-ray system is controlled automatically.

9. The method of claim 1 wherein said low-dose pre-shot generates an image within 5 seconds.

10. The method of claim 1 wherein said low dose pre-shot generates an image within one second.

11. The method of claim 1 wherein said step of imaging the patient with a low-dose pre-shot includes imaging the patient with a low-dose X-ray imaging sequence.

12. The method of claim 11 wherein said low-dose imaging sequence occurs at a frame rate of approximately 5 frames per second.

13. The method of claim 11 wherein said low-dose imaging sequence occurs at a frame rate of approximately 1 frame every 5 seconds.

14. The method of claim 7 wherein the X-ray images in the X-ray imaging sequence are sub-sampled prior to processing.

15. The method of claim 14 wherein the X-ray images of the X-ray imaging sequence are sub-sampled using binning.

16. The method of claim 14 wherein the X-ray images of the X-ray imaging sequence are sub-sampled using sparsing.

17. The method of claim 1 wherein said analyzing step further includes automatically analyzing said low-dose image using a computer algorithm.

18. A method for verifying the positioning of a patient in an X-ray imaging system before imaging the patient with a full-dose X-ray exposure including the steps of:

positioning the patient in the X-ray system;

imaging the patient with a low-dose pre-shot; and

verifying the positioning of the patient in the X-ray system via the low-dose pre-shot image before imaging the patient with a full-dose X-ray exposure.

19. The method of claim 18 wherein said verifying step includes adjusting the positioning of the patient and then re-imaging said patient with a second low-dose pre-shot prior to imaging the patient with a full-dose exposure.

20. The method of claim 18 wherein said low dose pre-shot uses a dose of 1 to 4 percent of the dose of the full-dose exposure.

21. The method of claim 18 wherein the X-ray system is controlled by a technician from a remote acquisition console.

22. The method of claim 18 wherein said low-dose pre-shot generates an image within 5 seconds.

23. The method of claim 18 wherein said low dose pre-shot generates an image within one second.

24. The method of claim 18 wherein said step of imaging the patient with a low-dose pre-shot includes imaging the patient with a low-dose X-ray imaging sequence.

25. The method of claim 24 wherein said low-dose imaging sequence occurs at a frame rate of approximately 5 frames per second.

26. The method of claim 24 wherein said low-dose imaging sequence occurs at a frame rate of approximately 1 frame every 5 seconds.

27. The method of claim 24 wherein the X-ray images in the X-ray imaging sequence are sub-sampled prior to processing.

28. The method of claim 27 wherein the X-ray images of the X-ray imaging sequence are sub-sampled by binning.

29. The method of claim 27 wherein the X-ray images of the X-ray imaging sequence are sub-sampled by sparsing.

30. The method of claim 18 wherein said verifying step includes automatically verifying said low-dose image using a computer algorithm.

31. A method for improving the quality of X-ray images generated by an X-ray imaging system, said method including the steps of:

positioning a patient in the X-ray system;

imaging the patient with a low-dose pre-shot; and

processing the low-dose pre-shot image to provide imaging parameters to be employed during a subsequent X-ray exposure.

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- The method of claim 31 with
parameters.
- The method of claim 31 with
management parameters.
- The method of claim 31 with
optimization parameters.
- The method of claim 31 with
cal filter parameters.